

# Package ‘dyncomp’

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**Type** Package

**Title** Complexity of Short and Coarse-Grained Time Series

**Version** 0.0.2-1

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**Depends** zoo

**Description** While there are many well-established measures for identifying critical fluctuations and phase transitions, these measures only work with many points of measurement and thus are unreliable when studying short and coarse-grained time series. This package provides a measure for complexity in a time series that does not rely on long time series (Kaiser (2017), <doi:10.17605/OSF.IO/GWTKX>).

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**LazyData** TRUE

**RoxygenNote** 6.0.1

**Suggests** testthat

**NeedsCompilation** no

**Repository** CRAN

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`complexity`*Calculate dynamic complexity of time series*

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**Description**

A function to calculate the dynamic complexity of a series of observations, resulting from the degree of fluctuation and the degree of scattering. This measure is calculated in moving windows of a specified width, resulting in a series of values of a length equal to the length of the series of observations.

**Usage**

```
complexity(x, scaleMin, scaleMax, width = 7, measure = "complexity", rescale = FALSE)
```

**Arguments**

<code>x</code>	The data to be used (representing a series of observations).
<code>scaleMin</code>	Theoretical minimum of the data. Will default to the observed minimum of <code>x</code> .
<code>scaleMax</code>	Theoretical maximum of the data. Will default to the observed maximum of <code>x</code> .
<code>width</code>	Width of the moving window. Default is 7.
<code>measure</code>	Either "complexity", "fluctuation" or "distribution". Indicates which value should be returned. Default is "complexity".
<code>rescale</code>	If TRUE, rescales the returned values to scale minimum and maximum. This is sometimes useful for graphical interpretation or plotting. Default: FALSE.

**Author(s)**

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**References**

Kaiser, T. (2017). `dyncomp`: an R package for Estimating the Complexity of Short Time Series. DOI 10.17605/OSF.IO/GWTKX

**Examples**

```
t <- runif(100, 0, 10)
c <- complexity(x = t, scaleMin = 0, scaleMax = 10, width = 5, measure = "complexity",
rescale = TRUE)
plot(t, type = "l")
lines(c, col = "red", lty = 4)
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